BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matters of	)	
	)	
Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to the Mobile-Satellite Service and Radiodetermination Satellite Service in the 1610-1626.5 MHz and 2483.5-2500 MHz Bands.	)	CC Docket No. 92-166
	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate the 1610-1626.5 MHz and the 2483.5-2500 MHz Bands for Use by the Mobile-Satellite Service, Including Non-Geostationary Satellites	)	ET Docket No. 92-28

JOINT SPECTRUM SHARING PROPOSAL OF CONSTELLATION COMMUNICATIONS, INC., ELLIPSAT CORPORATION, AND TRW INC.

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SUMMARY

Constellation Communications, Inc., Ellipsat Corporation, and TRW Inc. (together "the Joint Parties") hereby propose an equitable spectrum sharing approach for implementation in the 1610-1626.5 MHz and 2483.5-2500 MHz bands. The Joint Parties emphasize at the outset that they continue to believe, as they and others advocated during the deliberations of the MSS Above 1 GHz Negotiated Rulemaking Committee earlier this year, that full-band interference sharing in both bands is the solution most consistent with the public interest. Nevertheless, the Joint Parties believe that the compromise approach detailed here, once implemented, can also lead to the rapid achievement of many of the technical, economic, and regulatory objectives that have been articulated by the five applicants for non-geostationary mobile-satellite service ("MSS")/radiodetermination satellite service ("RDSS") systems in these bands, by other users of the subject frequency bands, and by the Commission itself.

The Joint Parties' Equitable Spectrum Sharing Plan is presented in two scenarios, which vary depending on whether and when the Russian Administration can be persuaded to reconfigure its "GLONASS" aeronautical radionavigation system so as to make some or all of the frequencies between 1610-1616 MHz available

for MSS/RDSS (hereafter collectively referred to as "MSS") use on a global basis. Under either scenario, each applicant would be licensed across the entire 16.5 megahertz (or at least across as much of the band as it could lawfully use), and only non-geostationary systems would be authorized.

First, if the MSS systems are able to secure timely and meaningful access to the entire 1610-1626.5 MHz band, the band would be divided into four segments. One segment would be assigned to the applicants proposing to employ code division multiple access ("CDMA") techniques for sharing on a full-band interference basis, and one segment would be assigned to the applicant that has proposed to operate a non-geostationary MSS system using time division multiple access and frequency division multiple access ("TDMA/FDMA") techniques in the 1613.8-1626.5 MHz band on a bi-directional basis. Both of these segments would be available to the respective applicants for immediate use, while the remaining two segments would be held in reserve for the applicants' use (again on the basis of the access technique proposed) on an as-needed basis following system implementation.

Under the alternative scenario presented by the Joint Parties -- i.e., an interim sharing solution that could take effect during the time that MSS system access to the full 1610-

1626.5 MHz band is still being secured -- the 10.5 megahertz of spectrum at 1616-1626.5 MHz would be divided into three segments: one segment would be assigned for CDMA systems' immediate use (again on a full-band interference sharing basis), one segment would be assigned for use by the system employing bi-directional TDMA/FDMA access techniques, and a single expansion/reserve band would be available to any of the non-geostationary applicants on an as-needed basis following system implementation.

Under the Joint Parties' proposal, no applicant is granted everything it applied for, and much work would still need to be done by the applicants and the Government in order to ensure that the proposal is fully implemented. Nevertheless, the Joint Parties' approach would ensure that each applicant has guaranteed access to an amount of usable spectrum in the 1610-1626.5 MHz band that will permit it to commence operations and become economically viable.

The Joint Parties' believe the sharing plan proposed here: (1) provides a fundamentally fair opportunity for the timely implementation of MSS service in the 1610-1626.5 MHz and 2483.5-2500 MHz bands; (2) meaningfully promotes competitive multiple entry into the bands by calling for the issuance of licenses to all non-geostationary MSS system applicants;

(3) leaves to the marketplace the decision as to which system(s) will be successful; and (4) incorporates several features that should facilitate the ability of the U.S. Government to coordinate the multiple systems internationally. The Joint Parties urge the Commission to give their proposal serious and prompt consideration.

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To: The Commission

JOINT SPECTRUM SHARING PROPOSAL OF CONSTELLATION COMMUNICATIONS, INC., ELLIPSAT CORPORATION, AND TRW INC.

Constellation Communications, Inc., Ellipsat Corporation, and TRW Inc. (together "the Joint Parties"), by their respective attorneys and with the leave of the Commission,[1/] hereby propose an equitable spectrum sharing approach for implementation in the 1610-1626.5 MHz and 2483.5-

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1/ Filed concurrently with this proposal is the Joint Parties' Motion for Leave to File Extraordinary Pleading, which requests the leave necessary under Section 1.405(c) to file a post-reply pleading in connection with the petitions for rule making that have been consolidated into and are to be considered in the above-captioned docket.

2500 MHz bands. Although the Joint Parties continue to believe that full-band interference sharing is the solution most consistent with the public interest, they believe that the compromise approach detailed here, once implemented, can also lead to the achievement of many of the myriad technical, economic, and regulatory objectives that have been articulated by the five applicants for non-geostationary mobile-satellite service ("MSS")/radiodetermination satellite service ("RDSS") systems in these bands, by other users of the subject frequency bands, and by the Commission itself.

The Equitable Spectrum Sharing Plan proposed in the pages that follow is presented in two scenarios. If, as contemplated, the MSS/RDSS (hereafter collectively referred to as "MSS") systems are able to secure access to the entire 1610-1626.5 MHz band, the band would be divided into four segments. Although each applicant would be licensed for as much of the band as it could use, and only non-geostationary systems would be authorized, two of the four segments would be assigned to the applicants (depending on access technique proposed) for immediate use, while the remaining two segments would be held in reserve for the applicants' use (again on the basis of the access technique proposed) on an as-needed basis following system

implementation. Under an interim sharing scenario, i.e., a short-term sharing solution that could take effect during the time that access to the full 1610-1626.5 MHz band is still being secured, the 10.5 megahertz of spectrum at 1616-1626.5 MHz would be divided into three segments: one segment for each access technique contemplated, and a single expansion/reserve band that would be available to any of the non-geostationary applicants on an as-needed basis following system implementation.

The Joint Parties' Equitable Spectrum Sharing Plan represents a major concession on their part -- a concession to which no reciprocal response has been made by those originally advocating a band segmentation approach -- particularly since they now call for implementation of a band-segmentation proposal despite their continued belief in the inherent superiority of the full-band interference-sharing approach from both a technical and regulatory standpoint. They believe, however, that in the interest of expediting service to the public, the sharing plan proposed here provides a fundamentally fair opportunity for the timely implementation of MSS service in the 1610-1626.5 MHz and 2483.5-2500 MHz bands. Indeed, the plan meaningfully promotes competitive multiple entry into the bands by calling for the issuance of licenses to all non-geostationary MSS system

applicants, and it leaves to the marketplace the decision as to which system(s) will be successful. Also, and of tremendous importance to the Commission, the Joint Parties' plan has several features that should facilitate the ability of the U.S. Government to coordinate the multiple systems internationally.

For the reasons stated below, the Joint Parties urge the Commission to give their proposal serious and immediate consideration, and recognize it for the positive and pro-competitive opportunities it provides for the nascent non-geostationary satellite service in the United States.

I. INTRODUCTION

There are now pending before the Commission six applications for authority to establish satellite systems that would operate in some or all of the MSS frequencies at 1610-1626.5 MHz and 2483.5-2500 MHz. Four of the applicants -- the Joint Parties and Loral Qualcomm Satellite Services, Inc. ("LQSS") -- have applied or proposed to use all of the spectrum in each band segment for non-geostationary MSS systems that would employ code division multiple access ("CDMA") techniques. These applicants have indicated -- most recently in an annex to the Report of the MSS Above 1 GHz Negotiated Rulemaking Committee

("Committee Report") -- that they would be able to coexist in the bands on an interference-sharing basis. A fifth applicant -- Motorola Satellite Communications, Inc. ("MSCI") -- has proposed to operate a non-geostationary MSS system using time division multiple access and frequency division multiple access ("TDMA/FDMA") techniques that would employ the 1613.8-1626.5 MHz band for both its user-to-satellite links and for its satellite-to-user links.[2/] The MSCI bi-directional MSS system would not only be incompatible for co-frequency operations with the systems using CDMA modulation, it would also be incompatible with any other system that might propose to employ the TDMA/FDMA techniques it would use. American Mobile Satellite Corporation ("AMSC"), the final applicant, seeks to add a portion of the 1610-1626.5 MHz band to the frequencies to be accessed by two of its three authorized domestic (U.S.) geostationary MSS satellites.

Over the course of the last 28 months, the dispute between the CDMA applicants and MSCI has been intense. At the

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2/ At the 1992 World Administrative Radio Conference, the type of bi-directional MSS service MSCI seeks to provide was included as a secondary allocation in the 1613.8-1626.5 MHz band. MSS allocations for 1610-1626.5 MHz uplinks and 2483.5-2500 MHz downlinks were made on a primary basis at the same conference.

heart of the debate, which has been waged in three separate fora,[3/] is the following issue: Whether the Commission's longstanding satellite policies that conclusively favor the establishment of competitive markets with meaningful multiple entry[4/] are better served by the adoption of the proposals of the four CDMA applicants or by the adoption of the mutually exclusive proposal advanced by MSCI?[5/]

Notwithstanding the Commission's formation of the MSS Above 1 GHz Negotiated Rulemaking Committee (the "Committee"), it has generally been believed that no Solomonic solution to this issue was available. In other words, the various participants

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3/ Specifically, the dispute has been raised in connection with the applications themselves, in the Commission's MSS spectrum allocation rulemaking and pioneer's preference proceeding in ET Docket No. 92-28 (which remains pending), and most recently and intensely in the course of the Commission's negotiated rulemaking efforts in the MSS Above 1 GHz service rules and licensing proceeding in CC Docket No. 92-166 (which has yet to see the issuance of a notice of proposed rule making).

4/ See, e.g., Domestic Communication Satellite Facilities, 22 F.C.C.2d 86 (1970); 35 F.C.C.2d 844, recon. in part, 38 F.C.C.2d 665 (1972). See also Establishment of Satellite Systems Providing International Communications, 101 F.C.C.2d 1046, 1065-67 (1985) (subsequent history omitted).

5/ In its Notice of Proposed Rule Making in ET Docket No. 92-28, the Commission "tentatively conclude[d] that the public interest is best served by multiple MSS LEO operators." Amendment of Section 2.106 of the Commission's Rules to Allocate the 1610-1626.5 MHz and the 2483.5-2500 MHz Bands for Use by the Mobile-Satellite Service, Including Non-geostationary Satellites, 7 FCC Rcd 6414, 6417 (1992).

were of the mindset that either all of the spectrum must be opened up to competitive multiple entry by the applicants who propose to employ CDMA modulation on a full-band interference-sharing basis, or MSCI must be allowed to implement a mutually exclusive system at 1613.8-1626.5 MHz. The applicants were unable to agree upon a viable scheme to segment the 1610-1626.5 MHz band between the varying transmission techniques.[6/] The absence of an agreement sorrowfully persists, notwithstanding the efforts of the Committee or the conclusions of all but a single applicant earlier this year.[7/]

6/ Since MSCI does not propose to use the frequencies at 2483.5-2500 MHz, use of this spectrum has not been in contention. The parties' task has been complicated, however, by the current need to accommodate aeronautical radionavigation systems (namely, the Russian "GLONASS" system) that threaten MSS access of any kind to frequencies between 1610 and 1616 MHz. The prospect of the establishment of a "GLONASS-M" system could add the 1616-1620.6 MHz band segment to the range of MSS frequencies affected by aeronautical radionavigation systems. Moreover, an additional complication is presented by the need for MSS systems to share spectrum with radioastronomy operations in the 1610-1613.8 MHz band.

7/ On October 7, 1993, MSCI and LQSS filed a joint sharing proposal that they claim would enable all five of the non-geostationary MSS applicants to establish systems using portions of the 1610-1626.5 MHz band. AMSC, as the only geostationary MSS system proponent, would be excluded from the band under the MSCI/LQSS approach. The Joint Parties were given an opportunity to join in the MSCI/LQSS submission, but declined for a variety of practical reasons -- some of which are expressed in this Joint Sharing Proposal, and all of which will be articulated in full in the responsive pleading(s) that will be filed in due course. At the same time, MSCI and LQSS were asked to consider this sharing proposal; both declined.

In the pages that follow, the Joint Parties present a proposal for sharing of the 1610-1626.5 MHz band by the five non-geostationary MSS system applicants that they view as equitable, practical, and capable of rapid domestic and international acceptance. This proposal is presented in the interest of breaking the impasse that presently exists, and thereby moving the industry forward to a point where market forces can take over from regulatory fiat. The Joint Parties continue to believe, however, that their proposals to promote multiple entry and meaningful competition through the use of full-band interference sharing in the 1610-1626.5 MHz and 2483.5-2500 MHz bands is the most appropriate solution.[8/]

Under the Joint Parties' proposal, no applicant walks away with everything it applied for, and much work needs to be done by the applicants and the United States Government in order to ensure that the proposal is fully implemented. Nevertheless, the Joint Parties' approach would ensure that each applicant has guaranteed access to an amount of usable spectrum in the 1610-

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8/ Among other reasons, it was clearly established in the Committee Report that the band segmentation scheme is inherently spectrum-inefficient for these bands (due, for example, to the requirement of additional guard bands and the loss of flexibility in terms of system design).

1626.5 MHz band that will permit it to commence operations and become economically viable.

II. THE PROPOSAL

In recognition of the fact that the Committee's proposals for resolving the sharing obstacle posed by the GLONASS system at 1610-1616 MHz may not be implemented in the near future, the Joint Parties have broken their frequency plan into two parts: an "Interim Sharing Plan" that would remain in effect until the GLONASS issues can be resolved, and a "Primary Sharing Plan" that would go into effect if and when the MSS systems are able to secure access to the full 16.5 megahertz of unidirectional spectrum at 1610-1626.5 MHz. Under both the Interim and Primary Sharing Plans, access to the available spectrum would be limited to the five non-geostationary MSS systems whose applications now have cut-off protection under the Commission's rules.

Both the Interim Sharing Plan and the Primary Sharing Plan are set out in the tables that follow:

INTERIM SHARING PLAN 1616-1626.5 MHz	
CATEGORY OF USE	**FREQUENCY BANDS**
TDMA/FDMA (Bi-directional)	1623.5-1626.5 MHz
Expansion/Reserve (Available to U.S. TDMA/FDMA and/or U.S. CDMA Systems Upon Demonstration of Need)	1622.25-1623.5 MHz
CDMA (All Systems on Interference-Sharing Basis)	1616-1622.25 MHz

PRIMARY SHARING PLAN 1610-1626.5 MHz	
CATEGORY OF USE	**FREQUENCY BANDS**
TDMA/FDMA (Bi-directional)	1622.5-1626.5 MHz
Expansion/Reserve (Available to U.S. TDMA/FDMA Systems Upon Demonstration of Need)	1621.5-1622.5 MHz
CDMA (All Systems on Interference-Sharing Basis)	1614-1621.5 MHz
Expansion/Reserve (Available to U.S. CDMA Systems on Interference-Sharing Basis Upon Demonstration of Need)	1610-1614 MHz

A. All Applicants Must Work With The Government To Resolve The GLONASS Sharing Situation.

The reduced spectrum availabilities under the Interim Sharing Plan provide all applicants -- TDMA/FDMA and CDMA alike -- with a powerful incentive to work closely with the Commission and the Executive Branch to prevail upon the Russian Administration to modify the GLONASS frequency plan so as to permit access to the 1610-1616 MHz band by the proposed MSS systems. The Interim Sharing Plan is designed to provide the five applicants with the bare minimum amount of spectrum they could use to become operational, while reserving a modest 1.25 MHz for future expansion of the same systems. Realistically, however, if any of the applicants are to be able to implement their business plans, the Interim Sharing Plan is barely a stopgap solution to the spectrum problem. In other words, the removal of GLONASS from the 1610-1616 MHz bands is not a condition precedent to implementation of the Interim Sharing Plan/Primary Sharing Plan approach, but it is an integral and indeed indispensable facet of the long-term proposal that is presented here. **It is imperative that the GLONASS spectrum plan be modified if the sharing of the 1610-1626.5 MHz band by CDMA and TDMA/FDMA systems is ultimately to succeed.**

B. All Current Systems Would Be Licensed To The Maximum Possible Extent In The 1610-1626.5 MHz and 2483.5-2500 MHz Bands.

In order to implement the sharing plans, all of the non-geostationary MSS systems proposing to use CDMA would be licensed to use the 1610-1626.5 MHz and 2483.5-2500 MHz bands on a co-equal basis. As a result of its proposal to use bi-directional TDMA/FDMA techniques, MSCI would be licensed to operate in the full secondary MSS allocation that is proposed in ET Docket No. 92-28 for the 1613.8-1626.5 MHz band, but not in the 1610-1613.8 MHz or 2483.5-2500 MHz bands (where bi-directional MSS operation is not and will not be permitted).

This licensing approach contemplates that the applicants, under either the Interim or Primary Sharing Plan, would be licensed to operate not only in the bands specified for them, but also in the bands identified as "Expansion/Reserve" bands, and all such spectrum would be coordinated internationally. In addition, the applicants would each be licensed to operate in the bands specified for the applicant(s) utilizing alternate access methodologies -- at least to the extent such licensing is consistent with the proposal set out in the preceding paragraph. It is important to emphasize that the Joint Parties fully expect that all 16.5 megahertz under the

Primary Sharing Plan (and all 10.5 megahertz under the Interim Sharing Plan) will be utilized by the initially-authorized U.S. nongeostationary MSS systems. In other words, the Expansion/Reserve bands are to be set aside for the U.S. systems, and are to be authorized for operation based on need; there is no spare or excess capacity under either the Interim Sharing Plan or the Primary Sharing Plan.

Although the mechanics of any expansion would need to be worked out to the satisfaction of the Commission and the applicants, the guiding principle would be that the designated Expansion/Reserve spectrum under the Interim and Primary Sharing Plans could be used by any eligible licensee (as there defined) upon a showing (i) that its system's capacity was saturated within the current spectrum assignment, and (ii) that it could not meet current or prospective users' needs without an increase in the amount of spectrum assigned. Moreover, this licensing approach provides operational systems with the flexibility to expand into additional allocated spectrum (beyond the designated Expansion/Reserve bands) in the event that the initially-authorized system or systems assigned to the subject band fail to meet their milestone targets for system construction and launch, or otherwise fail to become or remain operational. The same two-

pronged "need" demonstration would apply to an expansion under this scenario as well.

Objective and meaningful criteria would have to be developed for use in measuring system utilization in order to prove a "need" for spectrum enhancement. At this time, the Joint Parties believe it is premature to endorse any particular methodologies, but they do recite that a number of possible approaches have been introduced during their discussions. Whatever approach or approaches are selected, however, it is critical that the data be employed in an even-handed manner for purposes of evaluating any system's proposal to migrate into all or a portion of the Expansion/Reserve spectrum that is available to it under the appropriate sharing plan.

C. The Sharing Plans May Have To Be Adjusted Slightly As Final System Design Decisions Are Taken.

The sharing proposal outlined in the Interim and Primary Sharing Plans was developed in an effort to provide all of the applicants with a fair and reasonably definitive spectrum assignment. This is clearly not a "1/n" approach -- as MSCI is afforded a greater relative share of the available spectrum than any other single applicant would receive. At the same time, the plan endeavors to license all current non-geostationary MSS

system applicants and to provide those systems that are favored by the marketplace with at least some opportunity to grow with demand.

The Joint Parties selected an amount of spectrum that is divisible by 1.25 MHz for use by the CDMA systems under both the Interim and Primary Sharing Plan scenarios. In view of the newness of the service and the relative fluidity of system design at this early stage, the Joint Parties recognize that the Interim and/or Primary Sharing Plans may need to be adjusted to accommodate such elements as guardbands, modifications or variations in channelization, and existing spectrum users in the 1610-1613.8 MHz band or adjacent frequencies. The resolution of the GLONASS situation, if incomplete or subject to prolonged delay, may also engender the promulgation of some hybrid of the Interim and Primary Sharing Plans.

III. THE SHARING APPROACHES REFLECTED IN THE INTERIM AND PRIMARY SHARING PLANS ARE PRACTICAL, FAIR, AND PROMOTE MEANINGFUL COMPETITION IN THE NEW MSS BANDS.

In developing the sharing proposal set forth above, the Joint Parties' basic philosophy was to ensure equitable and flexible access to the available spectrum for each non-geostationary MSS system applicant, to provide some spectrum in

reserve for use by the initial nongeostationary applicant(s) in order to allow the most successful system(s) an opportunity to expand, and to provide for the measured and practical introduction of a new service in a market with unlimited but undeveloped potential.[2/] Their objective was to accommodate these tenets in a way that allowed for multiple entry and promoted meaningful competition in the provision of these new services.

As a practical matter, the Joint Parties' fixed-baseline-and-grow approach to spectrum sharing provides several measures of certainty that are not present under the MSCI/LQSS "start-big/grow-small" proposal. First, each applicant will have guaranteed access to a minimum specified amount of spectrum from the day it receives its authorization (assuming, of course, it meets the milestone schedules and fulfills the other conditions of its authorization). This will aid system operators in developing their business and technical plans, and facilitate the

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2/ The spectrum at issue in this proceeding is the only spectrum that is currently available for the introduction of satellite-delivered voice and data services via hand-held devices. Because AMSC's proposed geostationary MSS system would be unable to provide service through hand-held transceivers, and because AMSC is already licensed to operate a system in other frequency bands, the Joint Parties concur with MSCI and LQSS that the 1610-1626.5 MHz and 2483.5-2500 MHz bands must be limited to non-geostationary systems.

ability of all operators to secure necessary funding and international recognition.[10/]

Next, the Joint Parties' proposal provides dedicated spectrum for system expansion, and thereby will reward successful systems without limiting the ability of developing systems to compete. This approach is more in keeping with the traditional notions of efficient use of the limited orbital/spectrum resource than the MSCI/LQSS proposal, which affords the first system into operation access to all of the available spectrum on the day service commences (and when spectrum requirements are at their nadir), but then requires it to relinquish spectrum to accommodate additional operators at a time when demand from users should be growing.[11/] The MSCI/LQSS approach punishes success.

10/ Given the hefty price tag associated with even the most modest of the proposed systems, and the fact that the markets to be entered are new and undeveloped, it is unlikely that any applicant will assume by itself the vast risks that internal financing presents. In some fashion, all system operators, regardless of financial wherewithal, will likely go to external financing sources, if only to spread their risk. Being able to show prospective lenders or equity investors that a system will have access to a specified minimum spectrum assignment upon completion of construction is critical in this regard.

11/ In the Joint Parties' view, the inefficient initial use of spectrum under the MSCI/LQSS plan is tantamount to warehousing of spectrum. Under the MSCI/LQSS proposal, the first system into operation gets to use the entire band, irrespective of demonstrable need. There is little doubt, given past experience, that it will be very difficult to dislodge any operator claiming a "right" to the spectrum

(continued...)

The assignment of specific spectrum also should ease the international coordination of U.S. systems. Coming out of the 1992 World Administrative Radio Conference, there are a number of uncertainties as to how non-geostationary systems will be coordinated with each other, and with geostationary satellite and terrestrial systems. The coordination process would be greatly simplified if such coordinations could be based on known or expected use of a fixed or objectively ascertainable spectrum assignment, rather than on a basis where technically incompatible systems are presumed to operate in the same frequencies and any attempt to reconcile such contradictory operations must be pushed far off into the future. The Joint Parties' approach would deny a pretext to those who might seek to delay or divert U.S. technical and business leadership with claims of regulatory novelty or shortcomings.

Finally, an important practical advantage of the Joint Parties' approach lies in the fact that with specific assignments for CDMA and TDMA/FDMA systems going in, licensees would be able -- but would not be obligated -- to modify their system parameters to take advantage of any additional spectrum that

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11/ (...continued)
resource, regardless of the language of an agreement reached five or more years earlier.

subsequently becomes available. Under the MSCI/LQSS start-big/grow-small approach, every system would be required to modify its parameters each time a new system commenced operation. Considering the number of satellites, earth stations, and handsets that are contemplated for these systems, affording applicants the ability to stay with a system design rather than requiring them periodically to adjust it is an indispensable advantage.

In short, the Joint Parties' Equitable Spectrum Sharing Proposal provides the Commission with an opportunity to achieve its expressed objective of establishing meaningful competitive multiple entry in the 1610-1626.5 MHz and 2483.5-2500 MHz bands. The right of all of the current nongeostationary applicants to construct, launch, and operate systems will be preserved, and the applicants will not be forced into a race-to-the-stars scenario whereby the first system into operation has unnecessary access to the entire 1610-1626.5 MHz band, and every incentive in the world to fight tooth and nail to delay or prevent additional systems from coming on line. Although the Joint Parties' proposal and the MSCI/LQSS plan provide in the abstract an opportunity for all proposed systems to get into operation, the MSCI/LQSS plan is wholly unrealistic in its practical implementation. When all is